

## TITLE OF THE INVENTION

Portable Terminal Wearable on Forearm



## FIELD OF THE INVENTION

The present invention relates to a portable terminal wearable on the forearm such as a portable personal computer having a display unit.

## BACKGROUND OF THE INVENTION

A conventional portable terminal wearable on a forearm such as a portable personal computer is worn on a wrist or forearm of a user directly with a belt.

The conventional portable terminal wearable on the forearm will be explained with referring to the drawing. Fig. 4 is a perspective outline view of the portable terminal wearable on the forearm. A display unit 41 incorporates a liquid crystal display 42. At the back side of a display screen 42a of a case 43 of the display unit 41, a fixing band 44 for fixing near the wrist of the forearm and a holding member 45 through which the fixing band 44 is passed are provided.

When this portable terminal 1 is worn on the forearm, the display unit 41 is fixed and worn by winding the fixing band 44 passing through the holding member 45 around the wrist of the forearm, and the display screen 42a faces the outside. The user operates it while watching the display screen 42a.

When watching the display screen, the user has the arm moved so that the screen may be almost vertical to a visual axis of the user. If working with hand at this time, the user must be interrupted. Further, the display screen is not protected from an unexpected external impact.

## SUMMARY OF THE INVENTION

A portable terminal has a display screen which is adjusted almost vertical to a visual axis of a user without interrupting him/her and protected from an unexpected external impact is provided.

The terminal comprises a display unit having the display screen at the front side, a forearm mounting unit for mounting the display unit on the forearm near the wrist of the user, and a hinge case for rotatably connecting the display unit and forearm mounting unit. The hinge case includes a first rotary mechanism to which the display unit is rotatably connected, and a second rotary mechanism to which the forearm mounting unit is rotatably connected. The first and second rotary mechanisms turn the display screen to the position nearly vertical to the visual axis of the user and to the position where the screen faces down to the forearm side.

Thus, the display screen is visible under the condition that the screen is adjusted nearly vertical to the visual screen of the user. When not in use, the display screen is faced down, so that the display screen may be protected from an unexpected external impact.

## BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view of a portable terminal wearable on a forearm according to an exemplary embodiment of the present invention.

Fig. 2 is a perspective view showing the state where the portable terminal wearable on the forearm according to the embodiment is operated with a hand.

Fig. 3 is a perspective view showing the state where the display

unit of the portable terminal wearable on the forearm according to the embodiment is not operated.

Fig. 4 is a perspective view of a conventional portable terminal wearable on the forearm.

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## DESCRIPTION OF THE PREFERRED EMBODIMENT

An exemplary embodiment of the present invention will be described below while referring to Fig. 1 to Fig. 3.

Fig. 1 is a perspective view of a portable personal computer, a portable terminal, wearable on a forearm according to an exemplary embodiment of the present invention. Fig. 2 is a perspective view showing the state where the terminal is operated with a hand. Fig. 3 is a perspective view showing the state where a display unit is not operated. A display unit 2 of the portable terminal 1 has a display screen 3 composed of a liquid crystal display device and a touch panel, an input device. The unit 2 further incorporates a circuit board (not shown), a wireless module (not shown), an antenna (not shown), and a battery (not shown). A case of the display unit 2 is composed of front cabinet 4 holding the display screen 3, and a back cabinet 5 made of rigid metal material. Reference numeral 6 denotes a hinge case comprising a first rotary mechanism 6a to which the display unit 2 is rotatably connected, and a second rotary mechanism 6b to which a forearm mounting unit 7 is rotatably connected. The forearm mounting unit 7 has a forearm fixing band 8 for fixing the terminal near a wrist of a forearm of the user.

In Fig. 2, the portable terminal 1 is worn near the wrist of the forearm with the forearm fixing band 8 of the forearm mounting unit 7. First, turning the first rotary mechanism 6a, the user moves the hinge

case 6 and display unit 2 to a certain angle with respect to the forearm mounting unit 7, so that the x-axis of the display screen 3 of the display unit 2 may become visible. Then, turning the second rotary mechanism 6b, the user moves the display unit 2 to a certain angle with respect to the hinge case 6, so that the Y-axis of the display screen 3 may become visible.

As a result, the user can observe the display screen 3 adjusted nearly vertical to the visual axis of the user, and continue to operate the terminal with watching the display screen without being interrupted with a operation with a hand. The user can input an operation through the touch panel easily without practically moving the arm on which the portable terminal 1 is worn.

The display unit is not operated in Fig. 3. The user firstly turns the second rotary mechanism 6b, so that the display screen 3 of the display unit 2 positions in parallel with the hinge case 6, and that the display screen 3 may face the forearm mounting unit 7. Then, the user turns the first rotary mechanism 6a, so that the hinge case 6 and display unit 2 may contact the forearm mounting unit 7. At this time, the back cabinet 5 of the display unit 2 faces the outside.

That is, when the display screen 3 is not operated, the rigid back cabinet 5 of the display unit 2 faces the outside, so that the display screen 3 and the internal liquid crystal display device can be protected from an unexpected impact.

According to the embodiment, the back cabinet 5 of the display unit 2 is made of rigid metal, but may be made of reinforced resin.

The axis of the first rotary mechanism 6a of the hinge case 6 and the axis of the second rotary mechanism 6b cross almost vertically to each other. Under the condition that the user adjusted the display screen 3

almost vertical to the visual line of the user with respect to the axis of the second rotary mechanism 6b, the user rotates the display unit about the axis of the first rotary mechanism 6a. Thereby the visual line of the user does not drift while the display unit 2 is turned right or left.

5           Moreover, since the wireless module and antenna are incorporated in the display unit, harness from the display unit 2 to the outside is not necessary, and the structure of the hinge case is hence simplified,. The harness is free from risk of disconnection due to the rotating.

10           Further, the touch panel, as a pen input device, which is embedded in the display unit 2 enables an input operation on the display screen 3 only around the forearm, and other input device is not needed.